

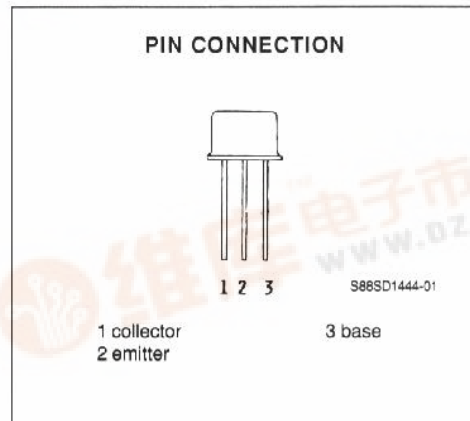
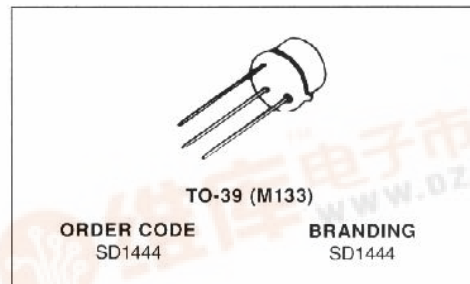


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SD1444

RF & MICROWAVE TRANSISTORS
450-512MHz CLASS C MOBILE APPLICATIONS

- CLASS C TRANSISTOR
- FREQUENCY 470MHz
- VOLTAGE 12.5V
- POWER OUT 2W
- POWER GAIN 8.0dB
- COMMON EMITTER



DESCRIPTION

The SD1444 is a 12.5V epitaxial silicon NPN planar transistor designed primarily for UHF communications. This device is packaged in a grounded emitter TO-39 package for increased power gain and optimum heat dissipation.

ABSOLUTE MAXIMUM RATINGS ($T_{case} = 25^{\circ}C$)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector - Base Voltage	36.0	V
V_{CEO}	Collector - Emitter Voltage	16.0	V
V_{EBO}	Emitter - Base Voltage	4.0	V
I_C	Collector Current	.40	A
P_{Tot}	Total Power Dissipation	5.0	W
T_{stg}	Storage Temperature	- 65 to + 200	$^{\circ}C$
T_j	Junction Temperature	+ 200	$^{\circ}C$

THERMAL DATA

$R_{th(j-c)}$	Junction-case Thermal Resistance	35.0	$^{\circ}C/W$
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SD1444

ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$)

STATIC

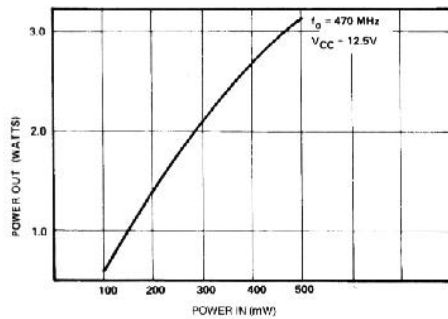
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
BV_{CES}	$I_C = 50mA$ $V_{BE} = 0$	36.0			V
BV_{CEO}	$I_C = 50mA$ $I_B = 0$	16.0			V
BV_{EBO}	$I_E = 1mA$ $I_C = 0$	4.0			V
I_{CBO}	$V_{CB} = 15.0V$ $I_E = 0$			1.0	mA
h_{FE}	$V_{CE} = 5.0V$ $I_C = 50mA$	20.0		200.0	

DYNAMIC

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
P_O	$f = 470MHz$ $V_{CE} = 12.5V$	2.0			W
G_P	$f = 470MHz$ $V_{CE} = 12.5V$	8.0			dB
C_{OB}	$f = 1MHz$ $V_{CB} = 12.5V$ $I_E = 0$			15.0	pF

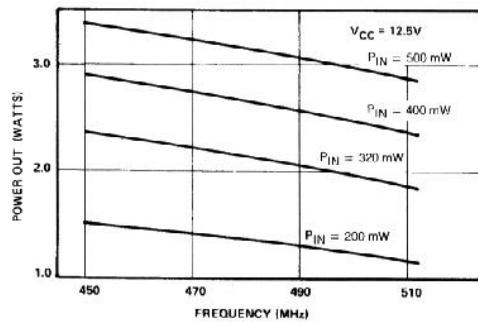
APPLICATION INFORMATION (typical curves)

POWER OUT VS. POWER IN



S88SD1444-02

POWER OUT VS. FREQUENCY

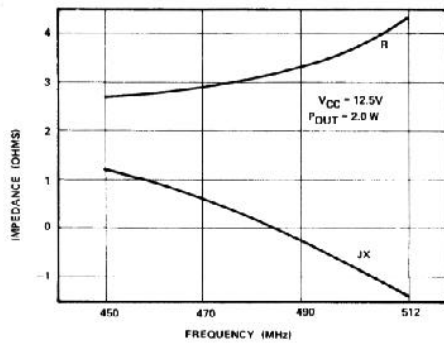


S88S1444-03

IMPEDANCE DATA (typical)

$$Z_s = 2.9 + j 0.6\Omega$$

$$Z_{CL} = 15.6 + j 10.2\Omega$$

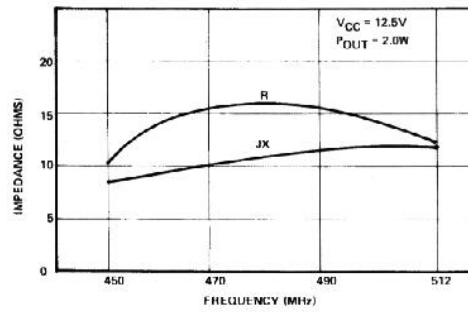
SOURCE IMPEDANCE VS. FREQUENCY

S88SD1444-04

$$F = 470\text{MHz}$$

$$V_{CE} = 12.5\text{V}$$

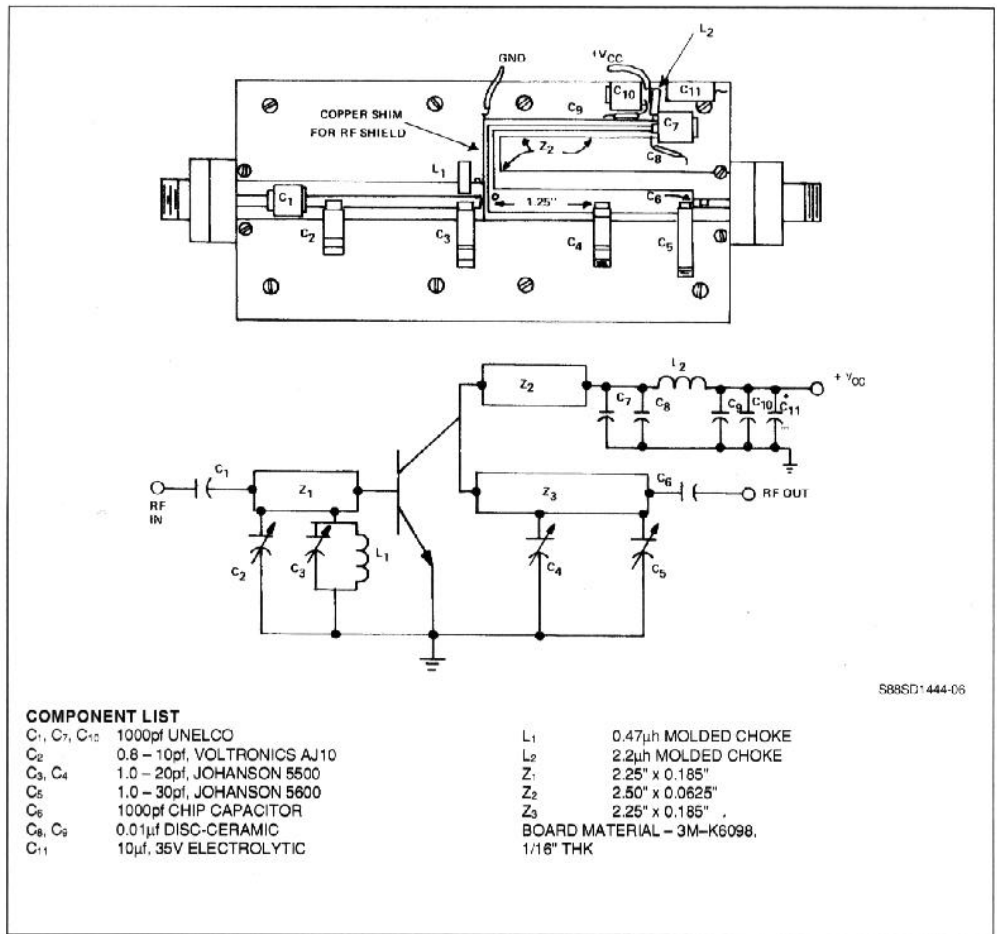
$$P_O = 2\text{W}$$

COLLECTOR LOAD IMPEDANCE VS. FREQUENCY

S88SD1444-05

SD1444

TEST CIRCUIT



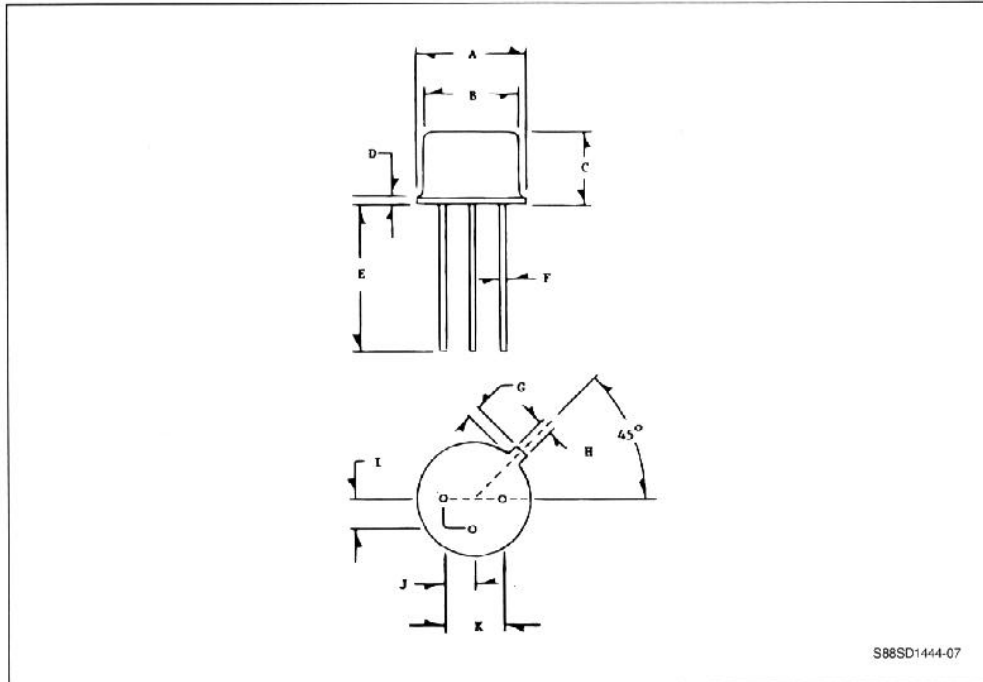
COMPONENT LIST

- C₁, C₇, C₁₀ 1000pf UNELCO
- C₂ 0.6 – 10pf, VOLTRONICS AJ10
- C₃, C₄ 1.0 – 20pf, JOHANSON 5500
- C₅ 1.0 – 30pf, JOHANSON 5600
- C₆ 1000pf CHIP CAPACITOR
- C₈, C₉ 0.01µf DISC-CERAMIC
- C₁₁ 10µf, 35V ELECTROLYTIC

- L₁ 0.47µh MOLDED CHOKE
 - L₂ 2.2µh MOLDED CHOKE
 - Z₁ 2.25" x 0.185"
 - Z₂ 2.50" x 0.0625"
 - Z₃ 2.25" x 0.185"
- BOARD MATERIAL – 3M-K6098,
1/16" THK

PACKAGE MECHANICAL DATA

TO-39



	Minimum Inches	Maximum Inches
A	.350	.370
B	.315	.335
C	.240	.260
D	.015	.045
E	.500	
F	.016	.019

	Minimum Inches	Maximum Inches
G	.029	.040
H	.028	.034
I	.095	.105
J	.095	.105
K	.190	.210